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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/826,523
Applicant : FRASER, ET AL.
Filed : APRIL 19, 2004
Title : METHODS AND COMPOSITIONS FOR TRANSPOSITION USING
MINIMAL SEGMENTS OF THE EUKARYOTIC TRANSFORMATION
VECTOR PIGGYBAC

Art Unit : 1636
Examiner : DUNSTON, JENNIFER ANN

Atty Docket No. : UNND-0061-UT1

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

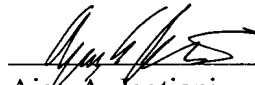
Sir:

The below-identified communication(s) is (are) submitted in the above-captioned application or proceeding:

- ☒ Information Disclosure Statement (IDS)
- ☒ PTO Form 1449
- ☒ IDS Fee Transmittal and Authorization to Charge Deposit Account
- ☒ Credit Card Payment Form

- ☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication, including fees under 37 C.F.R. §§ 1.16 and 1.17 or credit any overpayment to **Deposit Account Number 10-0233-UNND-0061-UT1.**

Respectfully submitted,


Ajay A. Jagtiani
Registration Number 35,205

JAGTIANI + GUTTAG
Democracy Square Business Center
10363-A Democracy Lane
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February 22, 2005

Patent Fee Transmittal for FY 2005

☒ Applicant Claims Small Entity Status 37 C.F.R. 1.27

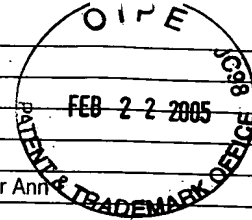
TOTAL AMOUNT OF PAYMENT

\$180.00

*** Includes fee changes from HR 4818, Sec. 801, signed on December 8, 2004

Application Number
Filing Date
Named Inventor
Examiner Name
Art Unit
Attorney Docket No.

10/826,523
19-Apr-05
FRASER, et al.
DUNSTON, Jennifer Ann
1636
UNND-0061-UT1



FEE CALCULATION

1. Filing Fees

Application Type	Description	Large Entity		Small Entity		Paid
		Code	(\$)	Code	(\$)	
Utility	Basic	1011	300	2011	150	\$ -
	Examination	1311	200	2311	100	\$ -
	Search	1111	500	2111	250	\$ -
Design	Basic	1012	200	2012	100	\$ -
	Examination	1312	130	2312	65	\$ -
	Search	1112	100	2112	50	\$ -
Plant	Basic	1013	200	2013	100	\$ -
	Examination	1313	160	2313	80	\$ -
	Search	1113	300	2113	150	\$ -
Reissue	Basic	1014	300	2014	150	\$ -
	Examination	1114	600	2114	300	\$ -
	Search	1314	500	2314	250	\$ -
National Stage	Basic	1631	300	2631	150	\$ -
	Examination	1633	200	2633	100	\$ -
	Search	1632	500	2632	250	\$ -
Provisional	Basic	1005	200	2005	100	\$ -

2. Extra Claim Fee

a. Claims as Filed

Total Claims	Extra Claims	
0	- 20 =	0
Independent		
0	- 3 =	0
Multiple Dependent		

Large Entity		Small Entity		Paid
Code	(\$)	Code	(\$)	
1201	50	2201	25	\$ -
1202	200	2202	100	\$ -
1203	360	2203	180	\$ -

b. Claims as Amended

Total Claims	After Amnt	Highest Paid	Present Extra
0	0	*	0
Independent			
0	0	**	0

Large Entity		Small Entity		Paid
Code	(\$)	Code	(\$)	
1201	50	2201	25	\$ -
1202	200	2202	100	\$ -
1203	360	2203	180	\$ -

First Presentation of Multiple Dependent

* Less than 20, enter 20 ** Less than 3, enter 3

3. Extra Page Fee

Total Pages	Extra Pages
0	-100 0

Large Entity		Small Entity		Paid
Code	(\$)	Code	(\$)	
1081	250	2081	125	\$ -

Subtotal for Application Fees

1	\$ -	+	2	\$ -	+	3	\$ -	=	\$ -
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4. Additional Fees

Description	Large Entity		Small Entity		Paid
	Code	(\$)	Code	(\$)	
Extension for response first month	1251	120	2251	60	\$ -
Extension for response second month	1252	450	2252	225	\$ -
Extension for response third month	1253	1,020	2253	510	\$ -
Extension for response fourth month	1254	1,590	2254	795	\$ -
Extension for response fifth month	1255	2,160	2255	1,080	\$ -
Notice of Appeal	1401	500	2401	250	\$ -
Filing a Brief in Support of an Appeal	1402	500	2402	250	\$ -
Request for Oral hearing	1403	1,000	2403	500	\$ -
Petitions under 1.17(f)	1462	400	1462	400	\$ -
Petitions under 1.17(g)	1463	200	1463	200	\$ -
Petitions under 1.17(h)	1464	130	1464	130	\$ -
Petition - public use proceeding	1451	1,510	1451	1,510	\$ -
Petition to Revive - Unavoidable	1452	500	2452	250	\$ -
Petition to Revive - Unintentional	1453	1,500	2453	750	\$ -
Utility Issue Fee	1501	1,400	2501	700	\$ -
Design Issue Fee	1502	800	2502	400	\$ -
Plant Issue Fee	1503	1,100	2503	550	\$ -
Reissue Issue Fee	1511	1,400	2511	700	\$ -
Publication Fee	1504	300	1504	300	\$ -
Statutory Disclaimer	1814	130	2814	65	\$ -

(cont.)

Description (cont.)

Description (cont.)	Large Entity		Small Entity		Paid
	Code	(\$)	Code	(\$)	
Recording each Assignment	8021	40	8021	40	\$ -
Submission of IDS	1806	180	1806	180	\$ 180
Request for Cont. Examination (RCE)	1801	790	2801	395	\$ -
Filing Submission After Final	1809	790	2809	395	\$ -
Surcharge - late filing fee or oath	1051	130	2051	65	\$ -
Surcharge - late provisional fee	1052	50	2052	25	\$ -
Non-English Specification	1053	130	1053	130	\$ -
Processing Fee 37 CFR 1.17(q)	1807	50	1807	50	\$ -
Request for Ex Parte Reexamination	1812	2,520	1812	2,520	\$ -
Request Pub. of SIR prior to action	1804	920	1804	920	\$ -
Request Pub. of SIR after action	1805	1,840	1805	1,840	\$ -
Each Add. Invention Examined	1810	790	2810	395	\$ -
Expedited Examination (Design)	1802	900	1802	900	\$ -
Unintentionally Delayed Priority Claim	1453	1,370	1453	1,370	\$ -
Certificate of Correction	1811	100	1811	100	\$ -
Maintenance Fees 3.5 years	1551	900	2551	450	\$ -
Maintenance Fees 7.5 years	1552	2,300	2552	1,150	\$ -
Maintenance Fees 11.5 years	1553	3,800	2553	1,900	\$ -
Surcharge - Late Payment 6 mos.	1554	130	2554	65	\$ -
Other fee					\$ -

Additional Fee Subtotal

\$ 180

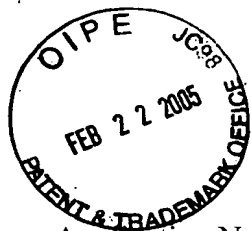
METHOD OF PAYMENT

☒ Deposit Account No.

10-0233-UNND-0061-UT1

☒ The Commissioner is hereby authorized to charge any additional fees which may be required under 37 CFR 1.16, 1.17, 1.18, 1.20 and 1.492 or credit any overpayment to the deposit account number listed above.

Name	Ajay Jagtiani	Reg. No.	35,205
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Telephone	703.591.2664	Fax	703.591.5907
Signature		Date	
		February 22, 2005	



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Commissioner for Patents
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Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §§ 1.51(b), 1.56, 1.97 and 1.98, this Information Disclosure Statement is submitted in the above-identified patent application. A listing of documents to be published on the face of any patent granted from this application is submitted herewith on Form PTO-1449. Any other documents or information submitted for consideration by the Examiner are listed in this paper. A copy of each foreign patent, or each publication or portion thereof listed or herein identified, is submitted herewith, except that a copy of any U.S. patent application identified herein or any patent, publication or other information listed herein cited or submitted in a prior application relied upon for an earlier filing date under 35 U.S.C. § 120 and identified below, is not submitted herewith.

02/24/2005 LWONDIH1 00000001 10826523

01 FC:1806

180.00 DP

CERTIFICATION

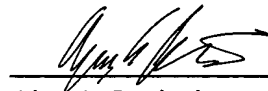
This Information Disclosure Statement is submitted after three months from (i) the filing date of the above-identified U.S. National Patent application, or (ii) after three months from entry into the U.S. National Stage of the above-identified International Application, or (iii) the date of entry into the U.S. National Stage of the International Application that has been assigned the above-identified U.S. Patent application number, whichever applies; and after the mailing date of the first Office Action on the merits of the above-identified application, but prior to issuance of the earlier of any Final Action or Notice of Allowance sent in such application. The certification under 37 C.F.R. § 1.97(e) is submitted separately

or below, or the fee required under 37 C.F.R. § 1.97(c) and § 1.17(p) is submitted herewith.

The Commissioner is hereby authorized to charge payment of any fees associated with this communication, including fees under 37 C.F.R. §§ 1.16 and 1.17 or credit any overpayment to **Deposit Account Number 10-0233-UNND-0061-UT1**.

The Examiner is requested to acknowledge consideration of the information provided in this paper in accordance with prescribed procedures.

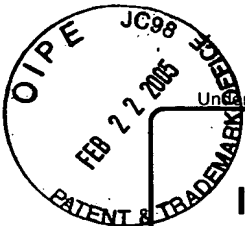
Respectfully submitted,



Ajay A. Jagtiani
Registration Number 35,205

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February 22, 2005



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Substitute for Form PTO-1449

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet

1

of

4

Complete If Known

Applicant Number	10/826,523
Filing Date	April 19, 2004
First Named Inventor	FRASER, Malcolm J.
Art Unit	1636
Examiner Name	DUNSTON, Jennifer Ann
Attorney Docket Number	UNND-0061-UT1

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Ausubel FM, Brent R, Kingston RE, Moore DD, Seidman JG, Smith JA and Struhl K (1994) Current protocols in molecular biology, John Wiley & Sons, Inc	
		Becker HA, Kunze R (1997) Maize Activator transposase has a bipartite DNA binding domain that recognizes subterminal sequences and the terminal inverted repeats, Mol. Gen. Genet., 254(3): pp. 219-30	
		Beeman RW, Staath DM (1997) Rapid cloning of insect transposon insertion junctions using 'universal' PCR, Insect Mol. Biol., 6(1): pp. 83-8	
		Berghammer AJ, Klingler M, Wimmer EA (1999) A universal marker for transgenic insects, Nature, 402: pp. 370-1	
		Cary LC, Goebel M., Corsaro BG, Wang HG, Rosen E, Fraser MJ Jr (1989) Transposon mutagenesis of baculoviruses: analysis of <i>Trichoplusia ni</i> transposon IFP2 insertions within the FP-locus of nuclear polyhedrosis viruses, Virology, 172: pp. 156-69	
		Elick TA, Bauser CA, Principe NM, Fraser MJ Jr (1996a) PCR analysis of insertion site specificity, transcription, and structural uniformity of the <i>Lepidopteran</i> transposable element IFP2 in the TN-368 cell genome, Genetica., 97(2): pp. 127-39	
		Elick TA, Bauser CA, Fraser MJ Jr (1996b) Excision of the <i>piggyBac</i> transposable element <i>in vitro</i> is a precise event that is enhanced by the expression of its encoded transposase, Genetica., 98(1): pp. 33-41	
		Elick TA, Lobo N, Fraser MJ Jr (1997) Analysis of the <i>cis</i> -acting DNA elements required for <i>piggyBac</i> transposable element excision, Mol. Gen. Genet., 255(6): pp. 605-10	
		Fraser MJ Jr, Smith GB and Summers MD (1983) Acquisition of host cell DNA sequences by baculoviruses: Relationship between host DNA insertions and FP mutants of <i>Autographa californica</i> and <i>Galleria mellonella</i> nuclear polyhedrosis viruses, J. Virol., 47: pp. 287-300	
		Fraser MJ Jr, Brusca JS, Smith GE, Summers MD (1985) Transposon-mediated mutagenesis of a baculovirus, Virology, 145(2): pp. 356-61	
		Fraser MJ Jr, Cary L, Boonvisudhi K, Wang HG (1995) Assay for movement of <i>Lepidopteran</i> transposon IFP2 in insect cells using a baculovirus genome as a target DNA, Virology, 211(2): pp. 397-407	
		Fraser MJ Jr, Ciszczon T, Elick T, Bauser C (1996) Precise excision of TTAA-specific <i>Lepidopteran</i> transposons <i>piggyBac</i> (IFP2) and <i>tagalong</i> (TFP3) from the baculovirus genome in cell lines from two species of <i>Lepidoptera</i> , Insect Mol. Biol., 5(2): pp. 141-51	
		Geier and Modrich (1979) Recognition Sequence of the <i>dam</i> Methylase of <i>Escherichia coli</i> K12 and Mode of Cleavage of <i>Dpn</i> I Endonuclease, The Journal of Biological Chemistry, 254(4): pp.1408-1413.	
		Gierl A, Lutticke S, Saedler H (1988) <i>TnpA</i> product encoded by the transposable element <i>En-1</i> of Zea mays is a DNA binding protein, EMBO J., 7(13): pp. 4045-53	
		Goryshin IY, Kil YV, Reznikoff WS (1994) DNA length, binding, and twisting constraints on IS50 transposition, Proc. Natl. Acad. USA, 91: pp. 10834-10838	
		Grossman GL, Rafferty CS, Fraser MJ Jr, Benedict MQ (2000) The <i>piggyBac</i> element is capable of precise excision and transposition in cells and embryos of the mosquito, <i>Anopheles gambiae</i> , Insect Biochem. Mol. Biol., 30(10): pp. 909-14	
		Grossman GL, Rafferty CS, Clayton JR, Stevens TK, Mukabayire O, Benedict M (2001) Germine transformation of the malaria vector, <i>Anopheles gambiae</i> , with the <i>piggyBac</i> transposable element, Insect Mol. Biol., 10(6): pp. 597-604	
		Grossniklaus U, Pearson RK, Gehring WJ (1992) The <i>Drosophila</i> sloppy paired locus encodes two proteins involved in segmentation that show homology to mammalian transcription factors, Genes Dev., 6(6): pp. 1030-51	
		Handler AM, McCombs SD, Fraser MJ Jr, Saul SH (1998) The <i>Lepidopteran</i> transposon vector, <i>piggyBac</i> , mediates germ-line transformation in the Mediterranean fruit fly, Proc. Natl. Acad. Sci. USA, 95(13): pp. 7520-5	
		Handler AM, Harrell RA 2 nd (1999) Germine transformation of <i>Drosophila melanogaster</i> with the <i>piggyBac</i> transposon vector, Insect Mol. Biol., 8(4): pp. 449-57	
		Handler AM, McCombs SD (2000) The <i>piggyBac</i> transposon mediates germ-line transformation in the Oriental fruit fly and closely related elements exist in its genome, Insect Mol. Biol., 9(6): pp. 605-12	

Examiner's
SignatureDate
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Substitute for Form PTO-1449		Complete If Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Applicant Number	10/826,523
		Filing Date	April 19, 2004
		First Named Inventor	FRASER, Malcolm J.
		Art Unit	1636
		Examiner Name	DUNSTON, Jennifer Ann
Sheet 2 of 4	Attorney Docket Number	UNND-0061-UT1	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		Handler AM, Harrell RA 2 nd (2001a) Polyubiquitin-regulated DsRed marker for transgenic insects, <i>Biotechniques</i> , 31(4): pp. 824-8	
		Handler AM, Harrell RA 2 nd (2001b) Transformation of the Caribbean fruit fly, <i>Anastrepha suspensa</i> , with a <i>piggyBac</i> vector marked with polyubiquitin-regulated GFP, <i>Insect Biochem. Mol. Biol.</i> , 31(2): pp. 199-205	
		Handler AM (2002) Use of the <i>piggyBac</i> transposon for germ-line transformation of insects, <i>Insect Biochem. Mol. Biol.</i> , 32(10): pp. 1211-20	
		Hediger M, Niessen M, Wimmer EA, Dubendorfer A, Bopp D (2001) Genetic transformation of the housefly <i>Musca domestica</i> with the <i>Lepidopteran</i> derived transposon <i>piggyback</i> , <i>Insect Mol. Biol.</i> , 10(2): pp. 113-9	
		Heinrich JC, Li X, Henry RA, Haack N, Stringfellow L, Heath AC, Scott MJ (2002) Germ-line transformation of the Australian sheep blowfly <i>Lucilia cuprina</i> , <i>Insect Mol. Biol.</i> , 11(1): pp. 1-10	
		Hirt B (1967) Selective extraction of polyoma DNA from infected mouse cell cultures, <i>J. Mol. Bio.</i> , 26: pp. 367-369	
		Horn C, Wimmer EA (2000) A versatile vector set for animal transgenesis, <i>Dev. Genes Evol.</i> , 210(12): pp. 630-7	
		Ivics Z, Hackett PB, Plasterk RH, Izsvak Z (1997) Molecular reconstruction of <i>Sleeping Beauty</i> , a <i>Tc1</i> -like transposon from fish, and its transposition in human cells, <i>Cell</i> , 91(4): pp. 501-10	
		Jarvis <i>et al.</i> (1990) Use of early baculovirus promoters for continuous expression and efficient processing of foreign gene products in stably transformed lepidopteran cells, <i>Biotechnology (NY)</i> 10: 950-5. (Abstract)	
		Jasinskiene N, Coates CJ, James AA (2000) Structure of <i>hermes</i> integrations in the germline of the yellow fever mosquito, <i>Aedes aegypti</i> , <i>Insect Mol. Biol.</i> , 9(1): pp. 11-8	
		Kaufman PD, Doll RF, Rio DC (1989) <i>Drosophila</i> P element transposase recognizes internal P element DNA sequences, <i>Cell</i> , 59(2): pp. 359-71	
		Kokoza V, Ahmed A, Wimmer EA, Raikhel AS (2001) Efficient transformation of the yellow fever mosquito <i>Aedes aegypti</i> using the <i>piggyBac</i> transposable element vector pBac[3xP3-EGFP afm], <i>Insect Biochem. Mol. Biol.</i> , 31(12): pp. 1137-43	
		Kunze R, Starlinger P (1989) The putative transposase of transposable element Ac from <i>Zea mays</i> L. interacts with subterminal sequences of Ac, <i>EMBO J.</i> , 8(11): pp. 3177-85	
		Li X, Heinrich JC, Scott MJ (2001a) <i>piggyBac</i> -mediated transposition in <i>Drosophila melanogaster</i> : an evaluation of the use of constitutive promoters to control transposase gene expression, <i>Insect Mol. Biol.</i> , 10(5): pp. 447-55	
		Li X, Lobo N, Bauser CA, Fraser MJ Jr (2001b) The minimum internal and external sequence requirements for transposition of the eukaryotic transformation vector <i>piggyBac</i> , <i>Mol. Genet. Gen.</i> , 266(2): pp. 190-8	
		Liu D, Mack A, Wang R, Galli M, Belk J, Ketpura NI, Crawford NM (2000) Functional dissection of the <i>cis</i> -acting sequences of the Arabidopsis transposable element <i>Tag1</i> reveals dissimilar subterminal sequence and minimal spacing requirements for transposition, <i>Genetics</i> , 157(2): pp. 817-30	
		Lobo N, Li X, Fraser MJ Jr (1999) Transposition of the <i>piggyBac</i> element in embryos of <i>Drosophila melanogaster</i> , <i>Aedes aegypti</i> and <i>Trichoplusia ni</i> , <i>Mol. Gen. Genet.</i> , 261(4-5): pp. 803-10	
		Lobo N, Li X, Hua-Van A, Fraser MJ Jr (2001) Mobility of the <i>piggyBac</i> transposon in embryos of the vectors of Dengue fever (<i>Aedes albopictus</i>) and La Crosse encephalitis (<i>Ae. triseriatus</i>), <i>Mol. Genet. Gen.</i> , 265(1): pp. 66-71	
		Lobo NF, Hua-Van A, Li X, Nolen BM, Fraser MJ Jr (2002) Germ line transformation of the yellow fever mosquito, <i>Aedes aegypti</i> , mediated by transpositional insertion of a <i>piggyBac</i> vector, <i>Insect Mol. Biol.</i> , 11(2): pp. 133-9	
		Lohe AR, Hartl DL (2001) Efficient mobilization of <i>mariner</i> <i>in vivo</i> requires multiple internal sequences, <i>Genetics</i> , 160(2): pp. 519-26	
		Lozovsky ER, Nurminsky D, Wimmer EA, Hartl DL (2002) Unexpected stability of <i>mariner</i> transgenes in <i>Drosophila</i> , <i>Genetics</i> , 160(2): pp. 527-35	

Examiner's Signature	Date Considered
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.
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Sheet 3 of 4

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NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		MANDRIOLI, et al. "Stable transformation of a <i>Mamestra brassicae</i> (<i>Lepidoptera</i>) cell line with the <i>Lepidopteran</i> -derived transposon <i>piggyback</i> " <i>Insect Biochem. Mol. Biol.</i> , Vol. 33(1), pp. 1-5, 2002.	
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Applicant Number	10/826,523
Filing Date	April 19, 2004
First Named Inventor	FRASER, Malcolm J.
Art Unit	1636
Examiner Name	DUNSTON, Jennifer Ann
Attorney Docket Number	UNND-0061-UT1

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